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THUMB-SUCKING

MAURY MASSLER, D.D.S., M.S.
and
ARTHUR W. S. WOOD, D.D.S.

Editor's Note:

Art Wood is one of Roy Ellis' and Sandy MacGregor's boys from Toronto, who pursued a year of graduate work in 1948 under Maury Massler at Illinois. He's tall, good looking (but kinda skinny) and, according to Maury, has a way with the mothers as well as with the children! Be that as it may, ye Ed saw Art at least once in Chicago when Now back at his Alma Mater teaching Pedodontics, Art is doing a fine job for his friend Sandy — and we're glad to wish him well and continued success.

A.E.S.

Introduction

The orthodontist, the pediatrician, the psychiatrist, the teacher and the parent are all concerned with the problem of thumb-sucking in the child. There is, however, no unanimity of opinion as to whether thumb-sucking is or is not detrimental. Differences of opinion are inevitably based upon differences in the background of the persons offering the opinions. However, these differences are not necessarily irreconcilable when all the facts are assembled in their logical manner. Much depends upon whether one is concerned with the act of sucking or with the child doing the sucking, i.e., whether we are interested primarily in the effects upon the occlusion of the teeth or the reason why the child sucks his thumb. It is only when the total, integrated picture is studied that we can exercise proper judgment based on facts rather than on conditioned opinions.

Thumb-sucking is rarely a habit. The significance of the act—its cause as well as its effect—depends almost entirely upon the age of the child. It becomes increasing significant as the child becomes older. It may be a perfectly normal act in the infant, a sign of fatigue in the younger child or a symptom indicating retarded emotional development or even regression in the older child. Clinically, therefore, the significance of the thumb-sucking and, as will be shown, the effects on the dentition must be considered in relation to the age of the child. For this discussion, it is convenient to divide the children into the following age groups; the infant, the pre-school, the grade-school, the teen-age child.

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The Infant (Birth to Two Years)

Normal Sucking

Sucking, including thumb-sucking, is a part of the normal behavior pattern of the infant. It is a perfectly normal and even desirable action in the infant. Without it, he would be unable to take food and survive. The newborn infant will suck vigorously on almost any object that comes in contact with his lips. This persists as more or less a purely reflex activity for several months (Shaffer, 1936). In the neonatal period the infant may suck for as long as 45 minutes on a dry nipple until he becomes fatigued after which he may refuse to take the formula which is offered him. He will suck at his fingers even after feeding if oral gratification has not been satisfied. Sucking also occurs when the fingers reach the mouth in the ordinary course of chance manipulation of the arms. The physiologic pleasurable act of sucking is at its peak during the so-called "hand to mouth reaction period" between the fourth and tenth months of life. During this age period everything within the infant's reach is promptly placed into the mouth. The tactile sensation of the lips and mouth facilitate exploration of the environment by the infant. Infants, at this age, pick up an object, look at it, mouth it,

look at it again and then repeat the process. The tendency to mouth everything within reach is replaced by the use of the tactile sensation in the fingers as the hand to mouth reaction gradually disappears. Gesell (1943) has noted that the tendency to mouth all objects "is most marked *during the period of teething* and will almost completely disappear between teething periods.

Abnormal Sucking

While considerable variability in the amount of thumb-sucking exists among infants, all infants suck their thumbs or other fingers frequently. Some infants seem to suck their thumbs excessively during their waking hours. In such cases the excessive sucking may be symptomatic of insufficient emotional gratification in the infant's life.

From birth to the middle of the second year, the infant is considered to be orally erotic. This probably initiates the sucking reflex and may account for the fact that the infant sucks his thumb to obtain one of the few pleasures in life available to him.

During this period of oral eroticism, thumb-sucking does not represent a habit, but can almost be considered a reflex. Toward the middle of the second year the young child transfers to an anal eroticism. This is a normal stage in the process of maturation and it is only when such transfer occurs that the child can be toilet trained. A child still clinging to his thumb is usually difficult to toilet train. At about 3 years of age the normal child transfers to a genital eroticism and the thumb-sucking lessens considerably and tends to gradually disappear.

Effects on the Dentition

In the infant with no teeth yet erupted there are no ill effects from thumb-sucking. There is also no effect on the primary dentition in the *average* child.

However, if the thumb-sucking is *continuous and intense* during the second year of life when the primary teeth are erupting, the act may displace the upper anterior teeth labially. Such displacement is not as serious as displacement of the permanent incisors, since as soon as the thumb is taken out of the oral economy, the normal action of the labial musculature is restored and will move the displaced primary teeth to their normal position (Lewis 1930). If the spontaneous correction does not occur after the thumb-sucking ceases, the labial musculature may be abnormal in size or function.

Treatment

Thumb-sucking during infancy is not the concern of the dentist and should be of no concern to the parent if no physical effect is produced on the teeth. When sucking is obnormally vigorous, that is, vigorous enough to displace the teeth, the problem is the concern of the pediatrician who interprets this act as a symptom of (a) insufficient feeding, (b) inadequate love for the child, or (c) bored, unhappy or overfatigued child. The reason for these feelings require investigation. In mild cases, dental treatment is unnecessary and parental counselling by the pediatrician may be adequate to relieve the anxieties which have led to all the thumb-sucking. When hunger is an initiating factor, cure results when the diet is made sufficient. There is also evidence to suggest that the length of eating time should be increased since prolonged sucking may result from the fact that rapid feeding satisfies the hunger reflexes before the lip and mouth reflexes have been satisfied (Kunst, 1948). The method of feeding should be reviewed. The infant should be held in the mother's arms during feeding and should *not* be placed in its crib with the bottle propped or presented at arm's length. Unpleasant and unsatisfied feeding situations (undue tension, overfeeding, underfeeding or urging food intake beyond what the infant desires) should be avoided.

In general, mechanical restraints such as elbow splints, metal mitts or thumb-guards are to be condemned. Their use may *aggravate* rather than relieve the emotional aspects responsible for the thumb-sucking. No attempt should be made to cure the habit in a malnourished or sick infant or child who may obtain significant emotional gratification from it. Frequently, the only treatment necessary to cure vigorous thumb-sucking in an infant is a little more cuddling and playing with the child and simple instruction to the mother in the technique of feeding the infant. Cuddling the young child also serves to allay many of

the parental anxieties generally, and those related to the thumb-sucking specifically.

The Pre-School Child (Two to Five Years)

Normal and Abnormal Sucking

As the infant grows and matures into a child the tendency to suck the thumb lessens. It is normal for the pre-school child still to suck his thumb occasionally. During this age period, sucking may often be observed in perfectly normal children in various situations. Many pre-school children suck their thumbs when fatigued and on the verge of going to sleep.

Thumb-sucking may become more persistent when the child feels displaced by younger siblings or by some other matter absorbing the parents' interest. It indicates a normal regression to an infantile emotional pattern. When the child is bored he usually derives his pleasures from sucking habits. It is surprising how many parents will leave the child with no toys, expecting him to stay alone; quietly, for a considerable length of time. The child is apt to suck when he has been scolded or punished. The child turns to the pleasure of thumb-sucking in times of stress when his other satisfactions in life are at a minimum. The active three or four year old who is constantly harassed by uninformed parents because of his efforts to satisfy his curiosity in his environment, may be driven to find pleasure within himself by sucking his thumb. Likewise a young child living in a city apartment without any proper place to play may react in a similar manner.

At 2½ to 3 years the child begins to assert his independence and attempt to wean himself from his mother. Tension and frustrations inevitably occur. An occasional short-lived sucking episode is therefore common.

If thumb-sucking continues after the third year in a *vigorous* manner, it is a symptom of emotional immaturity or a strong regressive tendency. It may occur in the introverted child who has pressure put on him by the mother and in the extroverted child who shows active resistance.

The line of demarcation between normal and abnormal thumb-sucking is still vague and ill-defined at this age. In general, occasional sucking under the situations mentioned should give no concern to the parent or doctor. However, if the act is very vigorous, or continuous through the day, it is usually a symptom of emotional maladjustment or rejection.

Thumb-sucking, like cigarette smoking, can indicate contentment or discontent. Some persons smoke only when they are content, especially after a meal. Others smoke nervously, in chain fashion. The infant similarly often sucks his thumb contentedly after a full meal, prior to falling asleep. On the other hand he may suck his thumb vigorously and cry when he is hungry. Again, the young child may suck his thumb before falling into a deep, innocent sleep; or he will suck vigorously, resentfully, after being scolded. In both instances the thumb was being sucked but for entirely different reasons and in an entirely different fashion. It must be remembered that thumb-sucking, like any neurotic behavior, represents one form of adjustment of the individual to his environment. The conditions under which this occurs must determine whether this is a desirable or undesirable adjustment. One should not, therefore, be too prone to make any hasty judgment in any case of thumb-sucking. The thumb-sucker, rather than the thumb-sucking should be carefully regarded lest we fall into the pernicious habit of cataloging all thumb-sucking into the category of a "bad habit." Sucking the thumb might, in some very young children, and in infants, be an entirely desirable act—indicating contentment. The *vigor* of the act and the *emotional state of the child* while performing the act are all-important considerations that condition one's interpretation.

Habits (Movements) Associated with Thumb-Sucking

A striking corollary to the act of sucking are the accessory movements performed by the free hand. These movements are particularly noticeable in the pre-school child. The most common associated movement is holding or stroking a piece of cloth, blanket, pillow or ragged doll. Covering the eyes, pulling the ears, hair or lip stroking are frequently observed. (Bakwin and Bakwin, 1942). Many infants and young children will

suck the thumb only when the favorite piece of cloth, pillow or blanket is available and will refuse to fall asleep unless the desired object is at hand.

Effects on the Dentition

Occasional thumb-sucking has no effect on the primary dentition. If it is very vigorous, it may disturb the dental arch. The damage that results depends on the vigor and duration of thumb-sucking.

When thumb-sucking is continuous and intense, temporary malposition of the primary teeth may result. If the cause can be discovered and the thumb-sucking ceases early (before the sixth year), the dental deformity will be remoulded and corrected in about 75 per cent of cases (Sillimann, 1942). Lewis (1930) has shown that, in most cases, if sucking ceases before the eruption of permanent teeth the deformity in the primary arch will spontaneously correct itself. He believes that thumb-sucking in the early years produces no lasting or serious deformities. If the child has a normal musculature its action on the teeth will correct the deformity produced by the sucking habit. If the child has an abnormal musculature it will have no action on the teeth and no correction of the deformity will be produced. In such cases, malocclusion will result even in the absence of thumb-sucking. The abnormal musculature is the causative factor in such cases; thumb-sucking merely precipitates and aggravates the malocclusion.

Treatment

When thumb-sucking continues beyond infancy, we must regard the act as a symptom of some psychological difficulty and treat the cause rather than "break the habit."

In the pre-school child, thumb-sucking which is practiced only before going to bed may be disregarded. It is a benign activity and attempts at correction are generally more harmful than the act itself. If, however, it is frequently indulged in during the waking hours, it means that the child is over-fatigued, bored or unhappy, and an investigation of the unsuitable factors in his environment should be undertaken and corrective measures attempted. Over-fatigue should be avoided. A child should have ample play facilities and an adequate amount of self-expression. Excessive criticism and over-correction should be avoided. The treatment therefore is—*find the cause* and correct it.

The School Child (Six to Twelve Years)

Thumb-sucking in children above the age of five or six is not to be viewed as casually as in younger children. The symptom is usually a manifestation of a general emotional and social immaturity which, unless corrected, may lead to a serious and lasting personality disorder.

Most thumb-suckers at this age are teased by their playmates and are frequently regarded as "sissies." His social development becomes retarded. The attention of the child then becomes more and more centered on the sucking. Often he cannot stop no matter how hard he tries, consciously, because of underlying factors. The symptom of thumb-sucking is usually only one of a group of traits indicating a disturbance in emotional balance or maturity.

Effects on the Mixed Dentition

The effects of thumb-sucking on the dentition are also not to be viewed as casually as in younger children. If the act is continued after six years of age, it may result in a serious deformity. This is due to the fact that the incisors are newly erupted and the entire anterior segment is easily displaced. In such cases, although the thumb-sucking is only a symptom of a more serious disturbance in the child, thumb-sucking should be treated lest the facial deformity which results becomes permanent, and lead to more serious emotional disturbances.

Many divergent views as to the effects of thumb-sucking are held by the medical and dental professions. We believe that many pediatricians and some psychiatrists too often base their judgment on personal opinion and not on clinical observation. They usually consider the habit of little consequence. Lewis (1931) on the other hand has reported and observed deleterious effects on thumb-sucking in a large number of cases. His results have shown that there is a definite type of deformity of the dental arches produced by thumb-sucking. Imrie in 1834, Nasmyth in 1839, McQuillan in 1863, were among the first to report thumb-sucking as a cause of

malocclusion. L. R. Johnson in 1939 summarized previous reports with this statement, "It has been established and is generally accepted that thumb-sucking and finger-sucking may be an etiologic factor in malocclusion." The effects of thumb-sucking will depend largely on the vigor of the sucking habit, the duration of sucking, the method of sucking, and the age of the child.

Types of Thumb-Sucking

Whether thumb-sucking per se is the etiologic factor in cases of Class II malocclusions, or whether it is the precipitating factor in cases with a *tendency* to Class II malocclusion, has not yet been scientifically determined. Nonetheless, *it is always a contributory factor.* The actual mechanical forces involved in thumb-sucking are described by Swinehart (1938) as:

1. The passive force of the thumb against the arch.
2. The abnormal contraction of the cheeks against the side of the arch by the sucking action.
3. The abnormal muscular pressure of the thumb against the palate.

When the thumb is held so that the pressure is exerted on the upper incisors in an upward and outward direction a protrusion of the maxillary incisors is produced. In some cases the hand is allowed to drop in such a position as to cause a prying action on the teeth. Not only are maxillary incisors carried forward by the thumb, but also the alveolar process is molded into an abnormal form. The "fulcrum" of this lever action is where the back of the thumb rests on the incisal edge of the mandibular incisors. A heavy callous is sometimes evident on the thumb at this point. Pressure is exerted in a backward direction and, according to some orthodontists, the mandible can become locked in distal occlusion. The abnormal pressure of the cheek muscles, particularly the buccinator, against the posterior arch causes a narrowing of the arch.

Treatment of Thumb-Sucking

At the very beginning of this review, it became apparent that there were two schools of thought concerning the treatment of thumb-sucking and the use of "corrective devices." One group, usually older dental practitioners, advocated a number of measures as "cures" for thumb-sucking—(a) bitter material (usually tincture of Aloes) painted on the finger; (b) mechanical thumb guards; (c) ridicule by the parent or playmates; (d) shaming by the dentist (who usually insists upon a repetition of the act in front of a mirror and in view of others) or (e) harangue and appeal to their sense of being "grown-up." All these measures are more or less obvious means of punishing the child for a "bad" act.

The other group, usually psychologists and pediatricians well trained in the emotional and mental aspects of child development, condemn such devices as methods of punishment rather than therapeutic devices and place them in the category of a whipping, the spanking, and the "towel method" of making a child behave.

It is realized of course, that such methods of making the child "behave" have been used by parents (and dentists) for quite some time. However, uncritical use of a method does not give it virtue—nor make it successful. It is also realized that most parents (and dentists) will defend the use of such punishments on the basis that "it works for me" or "what can you do if a child behaves like that?"

However, it is self evident that only those who use punishment as a method of establishing authority over a child will defend it. Only those who have not studied the emotional and mental development of the child cannot realize the potentially serious effects of such punishment upon the emotional and mental life of the child.

The psychologist points out, correctly, that the *reason* for the act is far more important than the act itself. When a child actually misbehaves (e.g. hits his baby brother) the reason why he misbehaves might be that he has lost his rightful measure of affection from the parents. A little love and affection for him will solve his problem. A licking will often only serve to make the next attack a sneak attack.

The psychologist and the pediatrician also point out that when an adult resorts to punishment, (physical, verbal or otherwise) in

order to force a child to accept his will, he admits ignorance concerning the child's mode of thinking. By resorting to his superior size and strength or vested authority he admits his defeat to the child.

It is not easy to be a *good* (i.e. adequate) parent. That requires intelligent study and training just as does any other supervisory job. A teacher or a construction foreman does not achieve his right to direct the activities of those under him by inheritance. Nor is experience alone a particularly good instructor. The fact that grandma raised five children is a tribute only to human resistance and not to grandma's spankings.

The importance of thumb-sucking as a factor in the production of malocclusion has been so greatly emphasized in the past, that mothers have over-reacted to the act in almost a violent manner. Without attempting to minimize its importance in the production of malocclusions in the school age child (for we certainly feel that, at this age, it *is* important) it is nonetheless too true that the emphasis upon the malocclusion has tended to obscure the importance of the act as a *symptom of emotional disturbance.* A greater emphasis on the *child* rather than on the act will correct this situation.

Frequently a mother scolds a child for thumb-sucking. This is usually ineffective and merely results in a power contest in which the child usually wins.

The parental attitude towards the habit should be examined and discussed. The psychological environment of the child should be investigated. The treatment of thumb-sucking is an individual problem. And very frequently, it is necessary to educate the mother first of all.

It cannot be stated too strongly that one must avoid a critical and shaming attitude towards the child since this may cause a loss of confidence which is difficult to restore. The mother out of a false sense of shame, is usually the worst offender in this respect. The more social the mother and the prettier the child, the more severe the criticism for thumb-sucking.

The dentist should never offend the child in this manner. Explanation to the mother and correction of her nagging very frequently solves the problem of thumb-sucking. Once the mother realizes that she is expecting too much of the child and that the child is reacting to this demand by a regression to the infantile act of thumb-sucking, one has accomplished two objectives—helped make a better parent and corrected the thumb-sucking child.

Use of Thumb-Sucking Devices

In treating the symptoms of thumb-sucking in the grade-school child, there appears to be general agreement that intelligent understanding of the reason for the act must precede any attempt to correct it. Punishment either real or implied, should be avoided since the child may become more resistant and tend to "fix" the habit. Nothing will disturb a child more than making him feel that he is being punished for something over which he has no control. What he needs is help, not in a maudlin fashion, but in an understanding, professional manner. To the properly trained pedodontist, thumb-sucking gadgets or devices are used only as therapeutic *aids*—never as corrective (i.e. punishing) devices.

Any therapeutic aid, no matter what type, should *never* be used unless the child actually requests it! No device should be used as "punishment." The device should be intriguing to the child. This throws the burden of intelligent understanding upon the dentist—since (1) he must win the confidence of the child, (2) he must approach the subject of treatment not as did the parent, with shame and condemnation, but with clear explanations, and thus win the child to wanting the appliance placed.

Only when the foregoing principles have been carefully observed and an interview with the parent has successfully orientated and won the cooperation of the parent as well as the child may the doctor even *consider* the use of appliances.

There is a variety of devices that have been advocated as "corrective." Those that punish the child are undesirable; those that remind him are effective. For this reason, we prefer nail-polish to bitter-stuff; a gauze bandage or adhesive wrapped on the finger as if for a cut rather than the grotesque mitts

for sale by misguided manufacturers. An intra-oral appliance—used to straighten the teeth and not to spike the thumb—is very effective especially in the older child since it does not show and is for "straightening the teeth" and not for thumb-sucking.

There is no device which will stop the thumb-sucking—*if the child resents it and does not want it.* All practitioners have seen children who will suck on fingers painted with tincture of bitter aloes until a diarrhea develops; overcome the handicap of a mitt and even bend the spikes attached to bands cemented upon the incisors.

Even when the thumb-sucking has apparently been stopped (against the child's will) with the use of such devices—let the parent and dentist beware because one never successfully "breaks" a habit—one only *trasfers* it. The thumb-sucking then becomes nail-biting, or finger-picking. This may spell success to the dentist—but never to the child.

No one holds any brief against "devices"—if they are used with intelligence. When correctly used they are valuable aids. When used without understanding they may become like all gadgets, actually harmful to the emotional development of the child. To properly assist the child to correct a habit requires ingenuity, wisdom, personality, sympathy, and understanding on the part of the dentist, who must direct his attention not only to the child, but to the parents and all other environmental factors producing an impact upon the child. The pedodontist needs only to observe one basic rule; *the device must never be used as punishment.* This means that the appliance may not be used until the child is orientated and actually wants it, else he will destroy or otherwise overcome the gadget or even transfer the habit to some other act. Habits can't be "broken"—they can only be transferred.

A child who is properly orientated by a well-trained pedodontist needs only a gentle reminder until he finds emotional release in some other activity—playing ball, skating, etc.

The Teen-Age Child

Thumb-sucking very rarely persists beyond the twelfth year. The impact of society, playmates or parents is too much even for the most persistent thumb-sucker. The symptom is almost invariably transferred to some other tic—*nail-biting* being the most favored with *nail-picking* and *"fingering"* running a close second.

If thumb-sucking persists after puberty, mental deficiency or pathologic psychic trauma should be seriously considered.

Other "Habits"

It should not be supposed, as a result of the emphasis in this paper, that thumb and finger-sucking constitute the only "habits" to which the child is subject. It is, however, one of the most common and significant of these mannerisms (Olson, 1929).

Further exploration into this field with a critical analysis of other "habits" and mannerisms such as nail-biting, lip-biting, tongue-thrusting and the like, are indicated not only for their effects upon the developing dentitions, but also because only when they are thoroughly explored and better understood by the pedodontist can we hope for a better understanding of the child and his physical growth and emotional development.

Summary and Conclusions

1. Thumb-sucking may be an etiological or contributory factor in the production of malocclusion.
2. Sucking of the thumb or fingers is normal in the infant and the habit is usually lost by the end of the second year of age.
3. If thumb-sucking is continued beyond the second year it is indicative of some disturbance in the emotional life of the child. The exact causes of thumb-sucking are often difficult to discover but appear to be associated most frequently with parental rejection or demands.
4. Malocclusion of the primary dentition caused by thumb-sucking will usually correct itself after the thumb-sucking ceases if the normal function of the tongue and lips exists. If normal function does not exist, in all probability the malocclusion will persist. In any case, treatment should consist in discovering the *cause* of the thumb-sucking and correcting it. Orthodontic intervention for this purpose is therefore rarely indicated during the primary dentition (ages 2 to 6 years).

5. On the other hand, malocclusions of the mixed or permanent dentitions (after the age of 7 years) caused by thumb-sucking are usually permanent and are not self-corrective. Orthodontic intervention for the thumb-sucker is therefore usually recommended, even when the cause cannot be removed.
6. Treatment of thumb-sucking should be directed primarily towards the discovery and elimination of the basic emotional factors causing the act. "Breaking the habit" is never indicated unless a dental deformity actually exists. *If dental deformity does exist,* it is necessary to *transfer* the act of thumb-sucking to some other, less noxious, form of activity such as carving, drawing, etc.
7. Devices designed to "break" the habit and which are presented to the child as a form of punishment are to be condemned. Such devices seldom succeed. Devices which are designed to *help the child transfer* the habit, and which are acceptable to him, usually succeed.
8. The treatment of thumb-sucking is an individual problem. To properly motivate the child to correct the habit requires ingenuity, wisdom, sympathy and understanding.

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Mott Foundation Fellowships

For those candidates who can meet the entrance requirements of the School of Graduate Studies, two fellowships in graduate dentistry for children are available, beginning September 21, 1949, at the W. K. Kellogg Foundation Institute of Graduate and Postgraduate Dentistry of the University of Michigan. Tuition and $125 per month as a living stipend are paid for two semesters and one summer school period, after which the student agrees to practice in the Mott Foundation Children's Clinic of Flint, Michigan, for one year at a salary of $4,000 for the year. During this year of practice, a problem may be completed and reported in a thesis to fulfill the final requirement for a master's degree in dentistry for children. Requests for information should be addressed to the Director of the Institute.

The Children's Hospital of Philadelphia is Accepting Applications for a One Year Full Time Dental Residency Which Begins July 1, 1949. The Yearly Stipend is $1,200.00 with Maintenance.

The residency provides training in general pedodontics, oral surgery, and general anesthesia. It is closely integrated with the pediatric medical and surgical training programs conducted at The Children's Hospital under the Department of Pediatrics, School of Medicine, University of Pennsylvania. Provision also is made for advanced work in pedodontics at the University of Pennsylvania School of Dentistry.

Applicants should be recent graduates of approved dental schools.

For further information communicate with the Director, The Children's Hospital of Philadelphia, 1740 Bainbridge Street, Philadelphia 46, Pa.

Nutrition and Human Occlusion

CHARLES M. WALDO, D.D.S.

Harvard School of Dental Medicine

Editor's Note:

Dr. Waldo, a graduate of the University of Michigan School of Dentistry, presents herewith a rather critical analysis of a timely controversy! Certainly some of the points he makes in regard to nutrition should make you stop and evaluate what you may have read or heard on that subject! We like the way Dr. Waldo expresses his doubts about certain oft-expressed, but not conclusively established, opinions, and you'll probably find plenty of ground for agreement or disagreement, depending upon which side of the fence you choose to graze!

A.E.S.

In order to fit my subject to the time at hand, I shall discuss the nutrition and occlusion of people living now under conditions similar to our own. So limited, the discussion logically centers about two questions. First, to what extent does occlusion depend upon nutrition? Second, and conversely, to what extent does nutrition depend upon occlusion? The evidence upon which one may attempt an answer to either of these questions is extremely meagre. In a field where the bulk of information consists of opinion, I regret that I must offer you, not new evidence, but more opinion. My only justification for doing so is a conviction that these are important questions—not only for the orthodontist and his patients but for those whose task it is to fit orthodontics into a public health program. I submit further that these are inherently difficult questions unlikely to be answered by simple methods or approaches.

We must face the following facts:

(1) That information presently available rests largely upon uncontrolled experiment and observation which serves to retard and confuse rather than to advance and clarify; (2) that where human beings are concerned controlled experiment and observation are always difficult and often impossible to achieve; and (3) that since serious gaps exist in essential fundamental knowledge we are dependent upon advances in biology and the other allied sciences and must seek and encourage assistance from workers in those fields.

In dealing specifically with the question—to what extent does occlusion depend upon nutrition?—I shall mention first, and very briefly, those areas in which we have useful and relatively positive information. There is, for example, no doubt that the loss of teeth or of tooth structure whether primary or permanent can, and often does, lead to marked changes in occlusion. These changes occasionally may be favorable, but as a rule they are decidedly unfavorable to the individual. Previous discussions have borne directly on this problem in considering the relationship of nutrition to dental caries and to diseases of the supporting structures. Nutritional factors underlying gross developmental defects of the teeth or facial structures also bear an obvious and important relation to occlusion. Disturbances of occlusion accompanied by gross pathology of supporting structures have been reported in extreme nutritional deficiencies experimentally induced in animals or observed in man. It is significant, however, that characteristic occlusal changes are not as a rule listed among the distinguishing symptoms of the various deficiency states even in their extreme manifestations.

If we pass to a consideration of less acute and obvious nutritional deficiencies, the relationship to occlusion immediately becomes obscure. Brash, in 1929, in an exhaustive critical review of the literature on irregularity and malocclusion of the teeth, found no con-

vincing evidence that malnutrition is an important etiological factor in malocclusion. I have not been able to discover that the situation has changed significantly since Brash's summary was written. It is significant that many who have written on the relationship between nutrition and dental problems have thoughtfully avoided reference to occlusion. Others have cited a lack of evidence and admitted an open mind. Schour and Massler (1945) in summarizing the effects of vitamin D deficiency obviously found a dearth of evidence, for they say merely that "Malocclusion of rachitic origin has been reported," adding a brief note suggesting the modus operandi. Essentially the same situation appears to exist where deficiencies of other nutritional factors have been studied. This is not surprising when we consider our present inability to control either observation or experiment relating to human beings. In the majority of cases we cannot hope to assay the effect of faulty nutrition upon occlusion unless we can know what the occlusion would have been under optimum conditions.

In this regard it is important to keep in mind that each individual organism, including all of his parts, functions and characteristics, is always and inevitably the product of the gene material which he inherited and the environment in which he lives. It seems well established that the pattern or blueprint for the growth of an individual is determined by his genes. A combination of favorable and unfavorable environmental factors will determine the extent to which the pattern is expressed. It is most important for us to recognize that the inherent pattern for facial development may be either good or bad. In the latter case, optimum environment factors would seem likely to ensure the fullest expression of a bad or disharmonious pattern. In any event, the effect of an environmental factor is superimposed not only upon the effects of other environmental factors but also upon the genetic potentialities of the individual. The human beings with whom we deal are genetic mixtures to the nth degree and their environments are extremely difficult to control. It is only occasionally that we have enough information to predict the genetic potentialities of an individual with a reasonable degree of accuracy. These are the reasons, I believe, why we have much opinion but little evidence on the relationship between nutrition and human occlusion.

If we turn to the field of animal experimentation, particularly to the studies of Stockard and Johnson, many of the most pressing problems disappear. Dogs present excellent material for the study of malocclusion and facial disharmony because people for ages have been selecting and breeding dogs for these very characteristics. Pure breeds suh as the British bull, Pekinese or Brussels griffon show extreme facial disharmonies characteristic for each and undoubtedly genetically determined. German shepherds, Salukis and bassethounds have harmoniously developed faces. In established breeds individuals show a high degree of uniformity. Both their genetic potentialities and their environments can be controlled. The crucial experiments which would determine the effects of nutritional variants have not been done, but it seems to me that merely asking some of our questions in this field throws them into a much clearer perspective.

Could we, with our present knowledge, devise any way in which we might feed a British bull pup in order to make him grow a face that would be characteristic of anything but a British bull?

The wide varieties of malocclusion shown by our human patients are not commonly accompanied by gross pathology of the supporting structures. Could we induce similar malocclusion in the normally harmonious jaws of the German shepherd or the bassethound? If these pure breeds proved resistant to such experiments would we be more successful with known cross-breeds possibly having latent unexpressed potentialities for malocclusion?

These and many other questions are worth asking where dogs are concerned simply because, given the resources, the intelligence and the persistence necessary, there is at least a theoretical chance of getting an answer. To ask them of human beings without the possibility of adequate control seems to me a waste of time.

This is the situation at present, but it could be radically changed by advances in the fundamental biological sciences; by an increased knowledge, for instance, of the mechanisms by which the genes accomplish their work.

The discussion so far has been concerned with the effect of nutrition upon occlusion. I should now like to consider briefly the second question—to what extent does nutrition depend upon occlusion? This comes close to the diagnostic problem in orthodontics. How efficient must occlusion be to prepare food for optimum nutrition? How severe may a malocclusion be before it constitutes a nutritional handicap? If there is no evidence of nutritional deficiency will an individual be better nourished if his occlusion is improved? These are all questions we are forced to answer in some way in daily practice. We badly need better evidence than is now available upon which to base our decisions.

To preface a discussion of these questions I should like to suggest that a person needs orthodontic treatment only if his occlusion impairs or threatens to impair his health. Orthodontic service outside this scope lies in the field of cosmetics and need not concern us here. Health may be impaired if an individual's occlusion is such that it (1) seriously restricts chewing or speech, (2) endangers the teeth or supporting structures, or (3) imposes a psychological handicap. These, rather than artificial and mechanistic criteria, should determine whether treatment is necessary and, above all, should form the basis for the orthodontic part of any public health program.

It follows that the question—to what extent does nutrition depend upon occlusion?—is an extremely important part of the larger question—to what extent does health depend upon occlusion? I think that the answer can come only from studies which measure or control the following factors: the amount, nature and nutritive content of food eaten; the occlusion; how well the individual *can* chew; what may be far different, how well he *does* chew; factors of age, disease, etc., including those which might affect digestion, assimilation and utilization as well as nutritional requirements; and finally careful assay of the nutritional status. Since occlusions vary within extremely wide limits, the numbers studied would have to be large. Since individuals differ with themselves from day to day, repeated tests would be necessary. It may be visionary even to contemplate such a study. So far as I know none has been made and it is probable that none can be made with present knowledge and resources.

Some sort of answer may be attempted, however, utilizing the best of our admittedly poor stock of information. The late Dr. Lawrence Henderson, speaking of the variability of human occlusion, suggested that, if a structure or function varied widely, it was probably not important that it should not vary. The observation that human occlusions vary widely may be readily verified by anyone, and it is an easy matter to find apparently well nourished persons with definite malocclusions. We may add to this the observation that many excellent physical specimens chew perfunctorily when they chew at all, and that much of our diet does not require chewing.

To refer briefly to laboratory experiment, it is worthy of note that Sognnaes (1941) found that rats having all of the upper molars extracted gained as much weight as did the controls when fed the coarse diet of Hopper, Webber and Conff. In a subsequent study, unpublished, he has observed the same result when the animals were fed a finely ground, purified diet. If contrary evidence exists I am unaware of it.

Again the answer to our question must be: we don't know. Admitting that some malocclusions probably do present nutritional hazards, it seems likely that a person can do well from a nutritional standpoint with a pretty low degree of occlusal efficiency if he is otherwise well equipped. Certainly there is no justification at present for the common assumption that all malocclusion results in malnutrition; or that a good nutritional status can be improved by improving occlusion.

Before closing, I should like to express doubt regarding one more aspect of the general problem. Nutrition, or, more correctly, diet, is related to occlusion in that the kind of food we eat requires more or less chewing,

and the exercise of chewing, in turn, plays a greater or lesser role in the development of the face and the denture. There is evidence that function is necessary for the full development of growing tissues. The trouble is, we do not know how much function is necessary; a minimum of function may be entirely adequate to fulfill its role in the growth process. I have been engaged for some time in the study of bone growth in the antlers of deer. Here a precise, delicate pattern is achieved during growth with almost a total absence of function. I cite this merely in refutation of a sweeping assumption that function is always necessary to the growth of bone. It seems likely that the requirement varies for different structures. Again we have no real evidence because of our inability to control our experiments and observations.

As I have pointed out, the sound information available to us regarding nutrition and human occlusion is indeed scanty, whereas the vital and unanswered questions in this field are almost limitless. I believe that direct clinical approach to these problems is unlikely to give us the answers. There is a vast need for fundamental research on the part of the dentist and nutritionist, but we must also look for help from the biologist, the biochemist, the physiologist, and their allied workers.

From the therapeutic standpoint the dentist can utilize nutritional means to safeguard the occlusions of his patients in so far as he can thereby prevent dental caries or breakdown of the supporting structures. Aside from this he should be alert to detect evidence of nutritional deficiency and he should see that his patient has a good diet according to accepted standards. I believe that there is, at the moment, no rational basis for prescribing added dietary factors where no evidence of deficiency exists.

The Use of Vinethene in Dentistry for Children

E. J. FREDRICKSON, D.D.S.

Spokane, Washington

Editor's Note:

Dr. Fredrickson is a graduate of Northwestern University School of Dentistry and was resident staff member of the Zoller Dental Clinic in Chicago, where he studied anesthesiology under Dr. Livingston.

A member of the A.S.D.C., Dr. Fredrickson now practices in Spokane where he is doing much dentistry for children and specializing in maxillo-facial and cleft palate prosthetic work.

A.E.S.

Intelligent cooperation, which plays a large part in successful anesthesia, particularly in the dental chair, cannot be expected from the very young or nervous child. It is a well-known clinical fact that if anesthesia in the young unpremedicated child is established by nitrous oxide, it is seldom possible to give sufficient oxygen to inhibit the jerky muscular movements, resembling the jactitations of the deeply cyanosed adult, without lightening the anesthesia so that the patient responds to surgical stimuli. These movements may involve the arms, legs, shoulders and back to such an extent that operating becomes impossible. Numerous explanations, none of them entirely satisfactory, have been given to account for the early onset of these asphyxial movements in childhood.[1]

If the child is being anesthetised for the first time, the credit or blame for the mental impression created must belong in great part to the anesthetist. In the matter of proper approach to the patient's mental attitude, every attempt must be made to secure cooperation and understanding between the child and the anesthesiologist. The anesthetic agent plays an important role in making a success of the administration of a general

anesthetic, since a rapid, pleasant induction and a rapid return to consciousness provides a briefer period of fright and confusion. Vinethene provides both a pleasant transition to unconsciousness and a rapid recovery period, thus making it particularly indicated for children.

Di-vinyl-ether is a clear, colorless liquid, with a specific gravity of 0.77 at 20 degrees centigrade, and a boiling point of 28.3 degrees centigrade. It is inflammable and explosive. Pure vinyl-ether (CH2:CH)20, plus absolute alcohol and an oxidation inhibitor, is sold under the name "Vinethene." It is explosive and inflammable as ethyl-ether, but more volatile, with a characteristic odor which is often noticed by the anesthetist; however, rarely seems to cause the patient any discomfort.

The outstanding advantages of vinethene as a general anesthetic in children's dentistry are as follows:

1. The armamentarium is simple.
2. There is no psychic shock.
3. There is ease of administration.
4. Induction is rapid and smooth.
5. Elimination is rapid.
6. Vomiting, involuntary urination and nausea are rare.
7. Obstreperous children are quickly anesthetized and thus the atmosphere of office is tranquil.
8. The excitement period, if any, has always been of short duration.
9. Premedication is not needed.
10. Postanesthetic calm is the rule even when the patient is preanesthetically nervous.[2]

Vinethene has definite advantages over ethyl- chloride, an agent advocated by so many men doing dentistry for children:

1. Breath holding does not occur as is the case under deep ethyl-chloride.
2. There is less masseteric spasm with the use of vinethene.
3. Unlike ethyl-chloride, its effect is not cumulative.
4. Unlike the anesthesia of ethyl-chloride, vinethene anesthesia does not deepen after the agent is removed.
5. The important advantage of vinethene over ethyl-chloride is that in the period of recovery, nausea, vomiting and collapse are rare.

The usual signs and symptoms of anesthesia are observed:

1. Respiration is the most important sign. It is somewhat increased in rate but regular, full and of equal or slightly increased volume.
2. The eye signs are unreliable, for although the eyelids as well as the muscles of the eyeballs may move in a manner suggesting light anesthesia, there is nevertheless muscular relaxation sufficient for surgery.
3. The blood pressure is higher during induction but drops slightly during narcosis.
4. Relaxation is prompt and effective.
5. The patient's face is usually flushed, pink, and warm with slight perspiration.[3]

Technic in the Dental Office

The routine necessities with any patient to be made unconscious are followed. A physician's report as to the condition of the heart, lungs, urine, and air-passages is obtained. The patient reports to the office with an empty stomach. Oxygen, good suction and a laryngendoscope are made ready for any emergency that may arise.

For the very small child if the operator doesn't have the small children's chair, the head rest may be taken off and the head may rest on a cushion on the back of the chair or a cushion fitted to the required height. The back of the chair is then tilted so that the patient is in a semi-recumbent position. This is an important factor, because it will allow the liquid to drop from the bottle so as to strike the gauze from a vertical position and lessen the hazard of aspiration.

The open drop ether mask is employed, the choice being a Schimmelbusch, Yankauer or the small Orchner masks. The mask is covered with a double thickness cotton stockinette. If possible,the eyes are protected with a wet cotton pad; however, should the patient protest, this may be done after induction. Vinethene is then dropped from the special dropper supplied with the commercial container onto the mask by a rotating motion

which covers the vaporizing area on the lower two-thirds of the mask, avoiding the area immediately above the eyes. The importance of keeping the patient supplied with a large amount of air at all times cannot be too highly stressed. The administration should begin slowly and rapidly increased to a maintenance rate of 30 to 60 drops per minute. If the increase in the rate is too rapid, it will usually be manifested by irritation of the respiratory passages with coughing, mucous secretions, etc. Therefore, constant observance of these respiratory manifestations as well as the quality and volume of respiratory exchange is very important not only to judge the depth of anesthesia but because the drug acts with such rapidity and because individual susceptibility varies as with other anesthetic agents. With deep and full respiratory exchange a stage of overdosage may be reached very rapidly. When the stage of surgical anesthesia is obtained, the mask is moved to rest over the nose making sure no pressure is exerted against the external nares thus obstructing respiration. The patient may be maintained under surgical anesthesia as long as necessary. If a longer period of anesthesia is contemplated or if an emergency arises requiring an anesthetic for over 15 minutes, ethyl-ether is used in conjunction with vinyl-ether. The dropping of vinethene is continued throughout the entire dental procedure. It is necessary that the chin be elevated and the upper air-passages be kept free from mucous and blood. If the mandible is permitted to relax and sag, obstruction of respiration occurs, thus emphasizing that it is imperative to at all times keep the mandible well elevated by a constant lift with the anesthetist's hand, if serious or perhaps fatal results from hypoxia are to be avoided. This holds true with the use of any anesthetic agent producing unconsciousness.

While working with children, it has generally been found most practical and convenient to insert the mouth prop after loss of consciousness, when the jaw is completely relaxed. A gauze pack placed in the posterior portion of the oral cavity will prohibit breathing through the mouth and prevent aspiration. As soon as the operation is completed, the oral pack is removed. A fresh gauze pack is placed over the site of extraction to control the flow of blood. Generally, the recovery period is uneventful with little or no nausea or vomiting. The patient is usually dismissed within a short period after the completion of the dental operation.

Summary

Vinethene is now the anesthetic agent of choice for dental surgery on children and is used in place of ethyl-chloride because of its overriding advantages:

1. Its effect is not cumulative.
2. There is less masseteric spasm.
3. The absence of undesirable after effects, as postanesthetic vomiting, nausea and collapse.
4. The patient is able to leave the office within a short period after the completion of the dental operation.

Medical Center Building.

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THE CONSTITUTION AND BY-LAWS of the American Society of Dentistry for Children*

THE CONSTITUTION

ARTICLE I

NAME

The name of this Society shall be THE AMERICAN SOCIETY OF DENTISTRY FOR CHILDREN.

ARTICLE II

PURPOSE

The purpose of this Society shall be the advancement and dissemination to the profession and the public of knowledge of all phases of Dentistry for Children.

ARTICLE III

MEMBERSHIP

Section 1. Membership in this Society shall be of five classes: active, associate, student, honorary and honorary associate. Only active members may vote and hold office.

Section 2. ACTIVE membership in the Society shall be limited to members of the American and Canadian Dental Associations.

Section 3. ASSOCIATE members may be elected by the State Units or by the Society and shall be designated as those working in related fields or as dental internes in recognized institutions.

Section 4. STUDENT MEMBERSHIP: those seniors of an accredited dental school who hold student membership in the American Dental Association may be elected by the State Units or by the Society.

Section 5. HONORARY membership may be conferred by the Society on any person who has contributed in an exceptional manner to the advancement of Child Health.

Section 6. Honorary associate may be conferred by the Society on members of Foreign Societies of Dentistry for Children.

ARTICLE IV

STATE UNITS

Section 1. State Units or Societies which may be organized in conformity with the general plan and purpose of this Society shall be enrolled as component units by a majority vote of the Executive Council upon receipt of an application for affiliation. Classification of membership in component units shall be the same as that of this Society.

Section 2. State Units must have a minimum of 20 active members. Where less than 20, the members shall be considered members of the Society at large.

Section 3. State Units shall send an official delegate or representative to each annual meeting of the Society. One delegate shall be sent to represent each 50 members or fractional number thereof.

Section 4. There shall be one official state unit for each constituent of A.D.A. but each unit may have several component groups where desirable and organized under the guidance of the constituent unit. They would meet jointly as a constituent Unit at the annual state meeting.

Section 5. There shall be a meeting of the Executive Council together with the delegates representing the State Units at a time prior to the annual meeting of the Society. This meeting shall be presided over by the President-Elect. The purpose of this meeting shall be for the discussion of various matters relating to the organization, work, program, and promotion of the various functions and activities of the State Units. This body may offer such resolutions to the Executive Council or to the Society as it deems advisable.

*Adopted September, 1948.

ARTICLE V
OFFICERS

The officers of this Society shall be President, a President-Elect, a Vice-President, a Secretary-Treasurer, and an Editor.

ARTICLE VI
EXECUTIVE COUNCIL

There shall be an Executive Council, consisting of eleven members, with the authority to govern the Society in all matters between annual meetings.

ARTICLE VII
MEETING

Section 1. A regular meeting of the Society shall be held once each year at the time and place of the meeting of the American Dental Association. The exact time and place shall be specified at least three months before the annual meeting.

Section 2. Special meetings of the Society may be called; (1) by the President at the written request of twenty per cent of the active membership; (2) by the unanimous vote of the Executive Council together with a majority vote of the delegates from the State Units.

ARTICLE VIII
QUORUM

At a regularly called meeting of the Executive Council, General Business Session, or a Committee Meeting, those present shall constitute a quorum.

ARTICLE IX
OFFICIAL PUBLICATION

The Society shall publish a Journal to be known as the "Journal of Dentistry for Children." This shall be the official publication of this Society, and shall be published quarterly.

ARTICLE X
AMENDMENTS

Section 1. This constitution may be amended at any official meeting of the Society by a two-thirds majority vote of all active members present, provided a copy of such proposed change has been sent to each member at least four weeks prior to such meeting.

Section 2. Amendments may also be made at any annual meeting of the Society by the unanimous vote of all active members present and voting.

Section 3. By-laws and standing rules may be adopted, amended, or repealed at any official or annual meeting of the Society by a two-thirds majority vote of active members present and voting.

THE BY-LAWS

ARTICLE I
MEMBERSHIP

Section 1. All applications for active, associate, and student membership shall be made in writing. When submitted to the secretary and accompanied by the annual dues they shall automatically become members in the designated class.

Section 2. In States having active units, membership in the State Unit is contingent upon membership in the American Society.

Section 3. The name of a candidate for honorary membership shall be presented, with reasons therefore in writing, to the Membership Committee. The Membership Committee shall present this with their recommendations to the Executive Council, and, upon the unanimous approval of the Executive Council, the candidate's name shall be presented to the membership at the next annual meeting. The approval of two-thirds of the active members present and voting shall elect the candidate to honorary membership. Upon his election, he shall be presented a certificate of election.

Section 4. Honorary associate membership may be conferred by the Executive Council upon members of Societies of Dentistry for Children of foreign countries when such societies are organized in conformity with the general purpose of the American Society.

ARTICLE II

DUES

Section 1. Dues for active members shall be three dollars per year, payable the first day of January. Each State Unit shall pay, on or before April 1, three dollars to the Secretary-Treasurer of this Society for each active member.

Section 2. Honorary members shall not be required to pay dues, and shall be granted all the privileges of membership with the exception of voting and holding office.

Section 3. Dues for associate and student members shall be two dollars per year, payable the first day of January or through each State Unit on or before April 1.

Section 4. Dues for honorary associate members shall be two dollars per year, payable on January 1st of each year.

Section 5. Any member, not a member of a component unit, who becomes delinquent in the payment of his dues shall be notified by the Secretary at the end of sixty days. Should he continue to be delinquent for thirty days thereafter, his membership shall be declared forfeited.

Section 6. Dues of new members paid during the last quarter of the year shall apply as of January 1st following.

Section 7. A proportionate amount of dues of each paying member shall be designated by the Executive Council as a subscription to the Journal of Dentistry for Children entitling him to receive this publication.

ARTICLE III

ELECTION OF OFFICERS

Section 1. (a) All officers except the Editor shall be elected by ballot at the annual meeting, their names having been placed in nomination either by the Nominating Committee or from the floor, and shall assume office at the close of that meeting.

(b) The Editor shall be appointed by the Executive Council.

Section 2. No member of the Society shall be eligible for office who has not been a member of the Society for at least three years, this rule shall not apply to election to committees.

Section 3. No member shall hold the same office twice in succession, except the Secretary-Treasurer, and the Editor. The filling of an unexpired term shall, in this regard, be considered as a term of office.

Section 4. Permanent or temporary vacancies occurring in office between the election and the next meeting shall be filled by the President for the unexpired term of that office.

ARTICLE IV

COMMITTEES OR COMMISSIONS

Section 1. The following standing committees or commissions of five members each shall be elected by the Executive Council: Membership and State Units, Public Relations, Professional Relations, School and Dental Examining boards and Community Dental Programs. They are to be elected in the following manner: One for one year, one for two years, and one for three years, one for four years and one for five years, and thereafter one to be elected each year for five years which shall be the term of office. It shall be the duty of each standing committee to submit to the president, within four months after the annual meeting, a full report of its activities. If such report, or absence of a report, indicates that a committee is not adequately functioning, it shall be mandatory for the President to replace any or all members of such committee as circumstances may indicate necessary to activate it.

The duties of the committees shall be as follows:

Membership and State Units: To promote and build the membership of the Society; to organize new State Units and to assist State Units in their activities and the increasing of their membership. To receive all recommendations for honorary and honorary associate membership and make appropriate recommendations to the Executive Council.

Public Relations and Publicity Committee: to foster cooperation of society and lay groups organized for the promotion of child health; to give proper notices to the newspapers and other publications where publicity is desired; and to assist the proper committee of the American Dental Association in the promotion of the annual national children's dental health day; to recommend speakers for lay groups.

Professional Relations Committee: To coordinate the activities of the Society with activities of the American Academy of Pedodontics, the American Association of Orthodontics, the American Society of Pediatrics, the American Academy of Pediatrics and other medical and dental organizations which are organized for the promotion of child health; to maintain a roster of approved clinicians on pedodontics and designate suitable clinical programs for state and local dental meetings which emphasize the practice of pedodontics.

School and Dental Boards Committee: To keep a permanent record of the time and the degree of emphasis allotted to the teaching of pedodontics in the various dental colleges; to work with the Council of Dental Education of the American Dental Association in raising the requirements and standards of pedodontic teaching with the giving of proper emphasis to this subject; to maintain liaison relations with the various state boards of dental examiners with the view of giving pedodontics proper evaluation in examinations for licensing dentists.

Community Dental Programs Committee: To study community dental service and dental educational programs for children and set up desirable standards for such programs; to assist when possible in the formation of programs in local communities by working with the State Units when the advice and assistance of the committee is requested; to maintain liaison with the Council of Dental Health of the American Dental Association so that the Society may assist the council in the promotion of dental health.

The oldest member in point of service, of the standing committees elected by the executive council, shall serve as chairman of the committee. It shall be the duty of each chairman to present in writing a report of his committee activities to the executive council at each annual meeting.

Section 2. There shall be an Editorial and Publications Committee of three active members elected by the Executive Council: one for one year, one for two years, and one for three years, and thereafter one each year for three years which shall be the term of this office. This committee shall be in charge of the financing of the "Journal of Dentistry for Children" and shall act in an advisory capacity to the Editor of the Journal but shall not be responsible for the editorial policies of the Journal.

It shall be the duties of the Editorial and Publications Committee to assist and cooperate with national and state publications particularly with the help and aid of the Publications Committees of the various State Units to the end that there shall be the most widespread printing of adequate articles on Dentistry for Children; to lend their assistance to the focusing of attention to Dentistry for Children through eliciting the cooperation of all dental editors.

Section 3. The President shall be empowered to appoint such special committees as he deems needful at any time; or, on the majority vote of the members present at any meeting he shall appoint committees as they direct.

Section 4. At least thirty days prior to the annual meeting of the Society, the President shall appoint and publish the personnel of two committees: (1) A Nominating Committee composed of three members to present the list of candidates for election to office for the following: (2) An Auditing Committee composed of three members to audit the Treasurer's books.

Section 5. Within sixty days after the annual meeting of the Society, the President shall appoint a program and local arrangements committee. The duties of this committee shall be to develop the scientific program for the next annual meeting; to make the necessary local arrangements including hotel accommodations for all clinicians; to publish and mail to the membership, at least 30 days prior to the meeting, the program. The printing of the program in the Journal of Dentistry for Children shall be deemed sufficient when the publication date approximates the indicated time.

ARTICLE V

RULES OF ORDER

The Society shall be governed in all matters not covered by the Constitution and By-Laws by Robert's "Rules of Order Revised."

ARTICLE VI

DUTIES OF OFFICERS

Section 1. It shall be the duty of the President to preside at all meetings of the Society; to approve all bills for payment; sign all documents; appoint all committees not otherwise provided for; present an annual address, and perform such other duties as are customary to his office.

Section 2. The President-Elect shall arrange the program of and preside at the joint meeting of the State Unit delegates together and Executive Council.

Section 3. The Vice-President shall assume the duties of the President in his absence.

Section 4. It shall be the duty of the Secretary-Treasurer to keep a record of the transactions of the Society and of the Executive Council; to attend to all correspondence; keep all official letters received, with a copy of replies to same; to send notice to all members of time and place of meetings; to notify officers, applicants for membership committees, and others of their election or appointments; and, to keep an accurate list of members, together with their addresses.

He shall collect all monies due the Society from its members and component Societies.

At the expiration of his term of office he shall turn over to his successor all records, books, or other properties relating to his office and perform all other duties pertinent to his office.

He shall keep all monies belonging to the Society, and pay out same, provided the money is in hand, upon the presentation of a properly approved voucher.

He shall furnish a bond, at the expense of the Society, for an amount designated by the Executive Council.

He shall make an accurate report of the Society's Treasury at the annual meeting. The Secretary-Treasurer shall be paid a salary of one dollar per year.

He shall be awarded, in addition to his salary, an honorarium of three hundred dollars per year.

Section 5. The Editor shall be responsible for the publishing of "The Journal of Dentistry for Children."

ARTICLE VII

EXECUTIVE COUNCIL

Section 1. The Executive Council shall consist of the President, the President-Elect, the Vice-President, the two immediate Past Presidents, the Secretary-Treasurer, the Editor, and four other members to be elected for the first year as follows: two for one year, and two for two years. Each of these shall be replaced as his term expires by a member elected to the council for a term of two years which shall be the term of this office thereafter. The Editor shall hold his office from year to year at the pleasure of the Executive Council. The Editor shall have the power to appoint an assistant Editor, and contributing Editors for a term of one year.

Section 2. Six members of the Executive Council shall constitute a quorum, and special meetings of the council may be held at any time and place that a quorum may be gathered, each member of the council having received notification.

Section 3. The Executive Council shall conduct the business of the Society between meetings. It shall adopt the budget for the Society and approve the expenditure of the Society's money by appropriation to the various committees or other special appropriations. It shall elect such officers and committees as are specified by the By-Laws. It shall render a full and complete report of all of its actions as well as all matters brought before it to the Society and when approved by the Society becomes the action of the Society.

Section 4. The Executive Council shall select five qualified candidates for appointment to the American Board of Pedodontics. From this group, the American Board of Pedodontics shall select one to serve for a term of seven years.

Child Management in Dental Radiography

ALBERT G. RICHARDS, B.S. (Ch.E.), M.S.*

Ann Arbor, Michigan

Editor's Note:

Albert Richards was born in Chicago, January 7, 1917, attended Wright J.C., Chicago, Northwestern University, and the University of Michigan, from which latter university he received his degrees. Ken Easlick thinks Al is tops in the radiography field, and has promised us another paper in the near future. We think you'll agree there's a lot of sound psychology evident in this article—perhaps because Al has two daughters, age 2 and 4½, to keep him on the practical side! Aside from his hobbies of woodworking and gardening, friend Al is kept busy teaching the dental students that good radiography for children is possible—and proving it to them.

A.E.S.

The young child patient presents a great challenge to the skill and ingenuity of the dental radiographer. Usually it is difficult to radiograph the child patient because of one or more of the following reasons. His mouth affords only a very limited space in which to work. Each jaw contains a larger number of teeth in various stages of development, and because of their location, some of these teeth are difficult to portray properly on a radiograph. Further, the younger the patient, the less cooperation he can give. Finally, many young children distrust all persons in white uniforms because of previous associations.

To overcome these difficulties with children, new technics and methods of patient management have to be developed, usually quite different from those commonly employed with the adult patient. Some of these technics, well-tested by experience, will be presented in this paper.

*Instructor in Dentistry (Radiography), University of Michigan Dental School.

Child patients deserve to be addressed pleasantly by their given names or nicknames, not as "little boy" or "little girl." Most children seem to resent keenly the immaturity and inferiority that accompanies diminutive names. A better response comes from "big boy" or "young lady" or any other name that implies personal importance.

Usually the child patient is accompanied by an adult, most often by his mother. One approach is to tell the patient to be seated in the x-ray chair and request the mother to remain in the reception room. Sometimes, however, it is impossible to seat the patient in the chair unless his mother is near at hand. Such situations can be resolved calmly by a compromise through which the mother is instructed to remain silent but is permitted in the room, out of the patient's direct field of vision as he faces forward in the chair. This compromise secures the mother's protective presence without distraction. She should not distract the patient nor should she be in the operator's way as he works.

A child's first experience with an x-ray machine is quite an adventure for him. A preschool child may never have seen anything like the x-ray unit, so time should be allowed for him to look around and perhaps touch the smooth surfaces of the modern machine. Many children wish to examine the surface texture of new objects, so that type of child might be allowed to touch the machine as long as there were no danger present. To other children the x-ray unit is quite frightening. One young patient confided that to him the x-ray machine resembled a dragon. Without much stretch of the imagination, his dragon with its sharp pointed nose, puffy cheeks, one red eye, long crooked neck, and big body and feet seemed quite credible! The frightened child needs assurance that the strange looking machine is nothing more than a camera—not an ordinary camera—but one

designed especially to take pictures of teeth. He may be assured further, in a confidential manner, that the camera does not have to touch him, and in fact he will feel nothing when the picture is made. The film packet may be explained to a small child as a white card that goes into his mouth like a cracker.

When talking to a child, it is advisable to speak slowly and choose words which lie within his vocabulary. If the operator himself were a student who had just finished learning beginning Spanish and had come upon two of his South American friends who were speaking in their native Spanish tongue, to him their speech would sound very rapid, even though they were speaking at their normal rate. As a novice in Spanish, he could understand a word now and then perhaps, but most of the conversation would be incomprehensible because of his friends' speed and his own lack of vocabulary. So it is with the small child. He has had only the beginning course in the English language and his vocabulary is yet quite limited. Therefore it is necessary to speak slowly and use simple words.

Most children respond to admiration and subtle flattery. The small girl is likely to be pleased by admiration of her dress, pigtails, hair bow, ring or shoes. Boys usually are not interested in their clothes and appearance, but rather in their size, their ability to excel in games, their uniforms and their toy weapons. An age-achievement device may prove helpful to keep the conversation (frequently a monologue) going. Birthday age minus five provides the average grade in school in many parts of the country. For the nine-year-old patient, nine minus five indicates the fourth grade. The operator asks him whether he is in the third grade. The answer usually is a proud, "No, I'm in the fourth grade." Complimented on his progress, he becomes a new friend. If he has been retarded in school and has achieved only the third grade, he will not have been insulted by the implication that he should be in fourth grade. School activities furnish excellent topics of conversation.

During the preliminary discussion it is advisable to have the head of the x-ray machine close to one side of the patient's head, but not directly in front of him. In this manner he gains some familiarity with the x-ray machine while the operator talks, and when the machine is finally positioned for making the exposure, he is not apt to be so frightened by its sudden closeness to him.

The patient can be told to open his mouth, the film packet quickly positioned and instructions given to bite on it to hold it still. Usually, the first time, the film is not retained in the proper position, so a new attempt must be made to place it correctly. He then may be instructed to open his mouth again so that the packet can be removed. As soon as he obeys, he may be praised for doing so well and then told that the film must be placed in position again. If this time the film is placed properly, the patient can be told quickly to hold very still while the position of the x-ray head is adjusted and the film exposed. The packet should be removed from his mouth, and the patient praised for his cooperation. Sometimes a reluctant boy can be inveigled into a more cooperative attitude when he is compared to an imaginary younger girl who came for the same kind of picture a short while before and who helped so nicely. The same ruse can be turned about for the girl patient, who does not wish to be outdone by a mere boy!

Experience indicates that negative statements such as "Don't move your head" are better avoided; instead, positive statements, such as "Hold your head still" secure more cooperation. The very young patient certainly must be told what to do, rather than asked to do it. Asking implies that an answer is necessary, whereas telling does not. By way of illustration—just before the exposure was made the young patient was cautioned, "You won't move your head now, will you?" Just after the exposure started, the answer appeared as a negative shake of the head, the very reaction the operator was trying to avoid. A similar interrogative caution to an older child elicited the answer "Why?" Some of the "Why's" in dental radiography are difficult to explain to a child and for that reason are best avoided, if possible, by phrasing instructions to avoid an answer.

Children usually are more active than adults, and they find it difficult to sit still for

a long exposure, whereas they usually can manage to hold still long enough for a short exposure. The use of a fast speed film, therefore, is indicated.

The use of an assistant to work the timer is sometimes desirable when x-raying children. While the operator stands in the patient's line of vision, holding his attention, perhaps with an uplifted finger, the assistant can make the exposure, almost unknown to the patient.

Some children are disturbed by the buzzing noise which accompanies the exposure of a film and the disturbance causes them to move slightly during the exposure. This movement, of course, results in an unsatisfactory blurred image on the radiograph. The disturbance due to the buzzing noise can be avoided readily. With the film packet properly placed, the cone of the x-ray unit directed correctly and the pre-set timer in the operator's hand, the child can be told, "Now the camera will buzz." On reaching the word buzz in this sentence, the Z's are sounded long and loudly. The operator's buzzing usually slightly amuses rather than disturbs the patient. As soon as the patient has become motionless, the timer button can be pressed to make the exposure. The patient usually is unaware that the exposure has been made, since the operator's loud buzzing conceals the lesser buzz of the machine.

Another technic that is useful when dealing with an apprehensive child is the "fake take" technic. The x-ray unit is turned off surreptitiously and the timer is set for any short exposure. The film and cone are positioned only approximately in the proper manner and the timer button quickly pressed to make the exposure. As soon as the exposure is over and the film is recovered, the operator can joke with the patient about how easily it was accomplished and how helpful the patient was, sitting still while the picture was being made. The patient is told that the same thing will be done on the other side of his mouth. By this time he will have lost most of his original apprehension and will allow the same exposure to be made without much trouble. Of course, for the second exposure the machine must be turned on and the film and cone carefully positioned in the proper manner. Then some excuse may be made for retaking the first region.

It is advisable to replace badly chewed or thoroughly salivated film packets with fresh packets before they are exposed, because chewing produces black pressure marks on the film and the moisture from the saliva soaks through the film packet, causing the film and the black paper inserts in the packet to stick together.

When all of the films have been exposed, the child may be praised again for his help. The importance of genuine praise of a child's efforts cannot be overstressed.

In spite of all the operator's efforts, there still will be instances in which the operator fails to get any radiographs. In such instances it is important that the operator does not admit failure in front of the child nor display anything but firm patience. If failure is admitted, the next encounter with this child probably will be doubly difficult. Instead of an exhibition of impatience with the child, the comment can be made, "I want to make some better pictures next Tuesday."

A frequent difficulty encountered with very small pre-school (2½-year-old) children is their inability to understand that they must hold the film packet in place by biting steadily on it rather than by chewing on it. This difficulty often can be overcome before the next appointment with the aid of the mother. She may be given a few film packets to take home with her, and in the familiar surroundings of the home she can have the child practice biting and holding the packet in his mouth for a few seconds at a time. After a little of this "homework," the child usually can do it correctly on his next appointment.

In the few instances in which it is impossible to obtain intra-oral radiographs of the posterior primary teeth, the extra-oral lateral jaw technic may be substituted. This substitution can be made because few children object to the exposure providing nothing goes into their mouths and they have but to hold their cheeks against the "mirror" (cassette). The "buzz" and "fake take" technics also are valuable supplements to this lateral jaw technic.

Procedures and technics have been described which may aid the dental radiographer in his work with child patients.

1. Children respond better when addressed by a name that implies personal importance.
2. It is preferable to have the mother of the patient remain in the reception room. However, there are instances when she is permitted in the x-ray room.
3. Safe investigation of the x-ray machine by the patient is one method employed to relieve fear. The frightened child needs assurance concerning the x-ray unit and its relation to him.
4. It is advisable to speak slowly and use simple words when instructing a child.
5. Admiration and subtle flattery are useful devices to obtain response and cooperation from the patient.
6. The head of the x-ray unit is positioned fairly close to one side of the patient's head until it is finally positioned for making the exposure.
7. The patient is carefully instructed regarding his duties in the production of the radiograph and is praised when cooperation is obtained.
8. Positive statements which tell the young patient what to do prove useful in securing cooperation.
9. The use of fast speed film is a necessity when radiographing preschool children.
10. The use of an assistant to make the exposure while the operator holds the patient's attention is a valuable procedure.
11. A loud buzzing noise produced by the operator in an effort to conceal the exact moment during which the exposure is made is a highly successful technic and is used in instances where the patient is frightened and moves when the x-rays are turned on.
12. A fake exposure made with the x-ray unit turned off and with the film and cone positioned only approximately in the proper manner has proven to be a useful technic to dispel the fears of some children regarding radiography.
13. Genuine praise of a child's efforts is an important technic in child radiography.
14. Failure to obtain radiographs must be met with firm patience and the suggestion that a new effort will be made at the next appointment.
15. The very young patient can be taught at home the proper method of film retention.
16. When it is impossible to obtain intra-oral radiographs of the posterior primary teeth, the extra-oral lateral jaw technic may be substituted.

Journals have been returned as incorrectly addressed as indicated below. If you know of a change of address, please advise the Editor.

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The Lingually Locked Maxillary Incisor: A Rapid Technic for the Construction of a Plastic Bite-Plane

MAURY MASSLER, D.D.S., M.S.
and
THEODORE SUHER, D.M.D., M.S.
Chicago 12, Illinois

Editor's Note:

Maury Massler is known to most of us as an accomplished lecturer and capable researcher, associated with the University of Illinois in the Graduate Pedodontic Division. He has worked with Ted Suher to prepare for you this very practical technic paper, and with Art Wood to bring you an excellent review of thumbsucking, elsewhere in this issue. Ted Suher, a graduate of the University of Oregon School of Dentistry, in 1945, acquired his M.S. in Pedodontics at the University of Illinois in 1947. At present, Ted is back at his Alma Mater in Portland, where he is Assistant Professor of Pedodontics, working with our Past-Prexy Mott Erwin, under our friend Harold Noyes, and doing a fine job.

A.E.S.

Introduction

The lingually locked maxillary incisor is peculiarly a pedodontic problem. The effects may be disastrous. It must be detected at its inception, when the maxillary incisors erupt into the oral cavity, and it should be corrected at once lest it cause irreparable damage.

A maxillary incisor (central or lateral) may become locked lingual to the lower anterior teeth during the period of eruption of the permanent incisors. This condition or malrelation is therefore most frequently seen in the young patient of seven to ten years of age, during the mixed dentitional period.

Probably the most common cause of this lingual occlusion is the prolonged retention of the primary predecessor. The succedaneous tooth is deflected lingually by the primary tooth root, causing the permanent tooth to erupt lingual to the lower incisors.

Another frequent cause of lingual displacement of the upper lateral incisor is a lack of arch length, either temporary or permanent, which causes a deficiency in the space for the lateral incisor. This may be the result of the premature eruption of the permanent cuspid, or the delayed eruption of the permanent lateral incisor. In either case the permanent incisor is crowded lingually.

The scissored incisor is not only esthetically displeasing to the patient, but the abnormal lingual force acting upon the lower anterior tooth may cause serious periodontal disturbances. Gingival inflammation and recession with a severe resorption of the labial plate of bone surrounding the lower incisor almost always results. The lower incisor becomes loosened and may be lost in a short time. In order to correct the scissoring early and as gently as possible, i.e., to move the upper incisor tooth or teeth into labial occlusion, several methods of treatment have been suggested:

A. The wooden tongue depressor has been used as a paddle or wedge to move the tooth labially. This method is somewhat traumatic to the lower tooth or teeth against which the paddle rests. The upper tooth is also frequently traumatized because of the fact that it is "jiggled" back and forth first by the paddle and then by the malocclud ed lower incisor. In order to "jump" the occlusion, the movement of the tooth must be done rapidly, which is seldom desirable. In addition, the "paddle therapy" does not always succeed be-

*University of Illinois, College of Dentistry, Child Research Clinic.

cause it depends upon the child's cooperation.

B. Lower anterior bite-planes have been constructed of cast metallic or pressed acrylic materials. The bite-plane is very efficient, comfortable and sure in its operation. The acrylic material is better than the metallic bite-plane because less trauma results to the teeth during occlusion.

This paper presents a rapid and economical technic for the construction of a plastic lower anterior bite-plane for the correction of the scissored incisor.

The advantages of the plastic bite-plane may be listed as follows:

1. This appliance can be constructed much more rapidly than the conventional types of bite-planes.
2. The plastic bite-plane provides a cushioned blow and thus results in less traumatic movement of the tooth than is possible with the cast metallic bite-plane.
3. Its action is certain and swift—and, freed of the patient's control, assures a successful result.

A note of caution should be inserted. The correction of the lingually displaced maxillary incisor should be attempted only if sufficient space is available in the premaxilla to receive the displaced tooth. If space is not available, the case should be referred to an orthodontist.

Technic for the Construction of a Plastic Lower Anterior Bite-Plane

1. Casts or Models

A. Full-mouth study models mounted on any simple articulator are essential in the designing of the bite-plane.

B. Working Model. A sectional model of the lower six anterior teeth is used in the construction of the bite-plane. The impression for this model may be taken directly from the mouth or from the study models in alginate or hydrocolloid material. Pour in artificial stone.

2. Materials Needed for the Construction of the Plastic Bite-Plane (see Figure 1).

A. A rectangular strip 1 inch x 2 inches of Polystrene of 1/16 inch thickness is used.

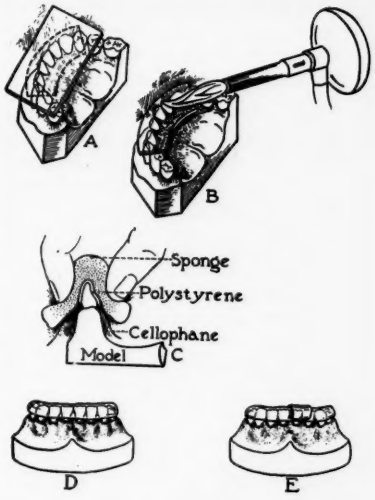

FIGURE 1
Drawing illustrating a technic for the construction of a lower anterior bite-plane in polystyrene.

(This material can be purchased from any local plastic supply house in small sheets at moderate cost.)

B. Heavy scissors, joe-dandy disk, and tweezers.

C. Bunsen burner.

D. Small sheet of cellophane and sheet of tinfoil.

E. Small section of heavy sponge (as from a knee-pad sponge).

F. Chloroform (or acetone) and paint brush.

3. Adaptation of Polystyrene to Model

A. Cover the lower anterior teeth of the stone model with well adapted tin foil. This allows sufficient clearance in the finished bite-plane for the cement.

B. Place the sheet of Polystyrene over the teeth and, with a sharp, pointed instrument, inscribed a crescent-shaped pattern denoting the labio-lingual and mesio-distal area to be covered by the bite-plane (see Figure 1A).

C. Cut out this crescentic pattern with a joe-dandy disk. If preferred, the sheet of Polystyrene can be softened over the bunsen flame and the pattern cut out with the

scissors. Place the pattern in the correct position on the model (see Figure 1B). Moisten the cellophane slightly and place it over the sponge.

D. Heat the plastic pattern evenly and gently on both sides with an inverted bunsen flame until it begins to soften and mold itself to the cast. Do not overheat the plastic—the material can be made to burn.

E. Using only moderate hand pressure (not more than ten pounds), bring the sponge down over the softened plastic and hold in place until the plastic has cooled and hardened (30 to 45 seconds). (See Figure 1C.) Do not use too much pressure. The material adapts itself to minute irregularities with great accuracy. Avoid interproximal undercuts.

F. Trim the bite-plane so that it does not impinge on the gingival tissue (See Figure 1D).

G. Inscribe on the plastic the position (mesio-distal width) of the small patch of plastic that will form the inclined plane (See Figure 1E).

H. Cut out a small patch of Polystyrene, soften over the bunsen flame, and press to position until cool.

I. Remove the patch, paint its inner surface and the outer surface of the bite-plane with acetone or chloroform and press the patch to position and hold for 30 seconds.

4. Finish and Cementation of the Bite-Plane

A. Adjust the inclined plane on the study models so that the displaced maxillary incisor will ride gently towards the labial (see Figure 2B).

B. Smooth the plastic with sandpaper disks or pumice and rag wheels. Polish by flaming lightly or brushing the surface with acetone. This plastic is hard, clean, clear, and does not absorb moisture. Construction of the bite-plane should consume 20 to 30 minutes.

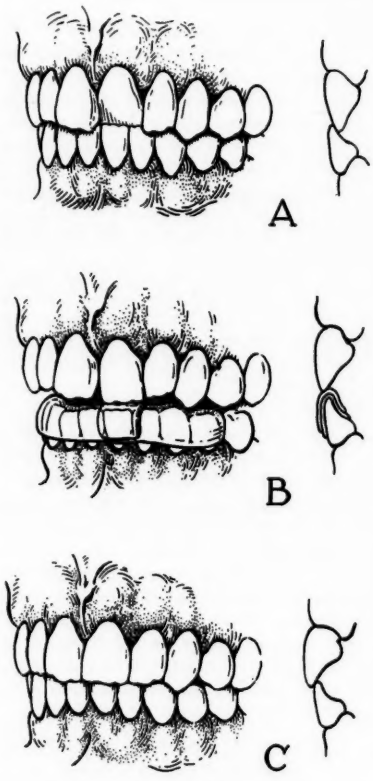

FIGURE 2
Diagram illustrating the action of the lower anterior bite-plane (constructed of polystyrene) in correcting the position of a lingually displaced upper central incisor.

C. Clean and dry the lower anterior teeth of the patient and cement the bite-plane to place with zinc oxyphosphate cement. Test the accuracy of the inclined plane with articulating paper, and adjust if necessary.

REFERENCE

Rabinowitch, Bernard Z. Correction of Displayed Incisors by the General Practitioner. J.A.D.A., 35:876-878 (December) 1947.

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AROUND THE COUNTRY

Well folks, here we are again. And we have news from Coast to Coast. Perhaps we could even dig up some world news if we dug deep enough!

Seems that Cleveland deserves first billing, for their 9th Annual Children's Dental Health Day, February 7, 1949. Again the program was outstanding, which one always expects from Chairman E. Carl Miller and his Committee.

There were table clinics by graduate and under-graduate students from the dental schools of 10 Universities. The essayists for the meeting were, Dr. Eugene North, Buffalo —"How To Enjoy Your Child Patients." Mr. Ralph W. Phillips, Indiana — "Management of Filling Materials used in Children's Dentistry." Dr. John W. Knutson, U. S. Public Health Service — "Fluorides Brighten the Dental Horizon," and dinner speaker was Dr. Helmuth Zander of Tufts University.

There was the usual Sunday afternoon program devoted to the laity interest. Movies, Presentation of Contest Awards, Radio and Music by the Cleveland Dental Society Orchestra, rounded out the program.

If you have never attended one of these meetings you have missed something. A program devoted entirely to the dental health of children with a laity participation and interest. From this program has developed the idea for a National Children's Dental Health Day. We just cannot praise this pioneering venture too highly. Others copy, but Cleveland leads!

And here is more news from Cleveland. A $60,000 dental research program to study the prevention and control of tooth decay has been announced by Dr. Winfred G. Leutner, President of Western Reserve University. The program will be under the direction of Dr. Thomas J. Hill, one of our early workers in this health field.

Children from five years up will be included in the study. Two research fellowships in dentistry have already been established, and more will follow. In addition, refresher courses for graduate dentists will be provided. The $60,000 grant will be provided to cover a period of three years, $20,000 for each year.

Dr. Tom has assured your reporter that within two years Western Reserve will provide the best post-graduate (refresher) course ever made available to the profession. Knowing Tom, one cannot doubt this statement.

The first meeting of the Northern California Unit of the A.S.D.C. was held Wednesday, November 17th. Dr. Henry M. Leicester presented the topic, "The Position of Fluorine in Dentistry for Children." Following the meeting, officers were elected and constitution and by-laws adopted.

OFFICERS

President: Ralph O. Wagner, Oakland.
President-Elect: I. Irwin Beechen, Oakland.
Vice-President: Carl Ellertson, Jr., Palo Alto.
Secretary-Treasurer: Lawrence McClaskey, San Francisco.
Editor: Charles A. Sweet, Jr., Oakland.
Director, 1 year: Kenneth McKinnon, San Rafael.
Director, 2 years: Larry Ludwigsen, San Francisco.

At present count the Unit has 95 active members. Much credit is due Hugo Kulstad, Charlie Sr., and the spark plug—Charlie, Jr., a chip off the old block!

American Association of Public Health Dentists:

Good news for all the boys and gals who have been providing a dental health service for children. Active membership is now open to all dentists who actually provide a public health service in their practice.

Carl L. Sebelius (Nashville, Tenn.) is the Secretary, an A.S.D.C. member, and no doubt active in that bit of legislation which opened the doors of membership to many dentists. Jolly G. Williams (Atlanta) probably had a hand in the deal, too.

FROM CALIFORNIA:

Wednesday, February 9, 1949 was the first regular meeting of the Northern California Unit of the A.S.D.C. Under the guiding hand

of Ralph Wagner of Oakland, it was a huge success. Speaker of the evening was Dr. Robert Stewart, whose subject was "An Overview of Child Psychology." He presented an excellent paper.

Many of the men present came from far and near. There was a contingent of men from San Jose led by Drs. Bartscher and Thompson. Dr. Bartscher is well known for his famous gardens presented to the College of Physicians and Surgeons.

Some new faces present: Portly Gene West who is in with his Dad, the famous professor, and of course doing orthodontia. Bill Finke, the new lecturer in Dental Materials at College of P & S. Bill is an expert cartoonist besides all of his other activities. William Howe, the boat builder, who in his spare time is building a 38 foot yacht. The Castles of Castle Valley (I mean Castro Valley) were there minus their horses. Must be great to be rich. Bernie Smith of Ken Easlick fame was there. John Tochhini from South San Francisco. Walter Cuthbertson, a mighty swell guy, was also there.

There were lots of regulars present: The popular Larry Ludwigson, who is on so many committees he gets home about once a month. Ken McKinnon, President of Marin County Dental Society came with Sam Brown of Petaluma. Ken teaches at Cal (soon at P & S). Carl Ellertson, from Palo Alto, the world's most populated town with dentists, is now the town's most popular dentist. John Hughes from Oakland. Irwin Beechen sat at the head of the table in his capacity of president-elect and program chairman. His first job was excellent. Keep up the good work, Irwin, in case I don't see you. Eddie Mack and Lynn Rudee, the two Toni Twins were confusin' and amusin'. The women's contingent which is ever growing and helpful was there: Doris George, Josephine McIntyre, Emma Cundal, Mae Scott, Dorothy Young, Mary Martin and Lois Chilcote.

Other news: The University of California Annual Alumni Meeting was held Sunday and Monday, January 30 and 31st. There was a record crowd present. The Dentistry for Children portion of the meeting was in the form of a Panel of so-called experts. The moderator was Charles Sweet, Sr.; the first expert was Carl Ellertson whose subject was Patient Management, Tommy Quigg on Cavity Preparation, Charles Sweet, Jr. on Pulpal Therapy, and Ken McKinnon on Care of Young Permanent Teeth. It was a fine success.

On February 7th, Children's Dental Health Day, many programs were held throughout the State in its observance. The Milk Companies put on a fine advertising program with many notables including Governor Warren, all-American Jackie Jensen, halfback from U.C., and Olympia game star Ann Curtis, stating the need for good teeth. One of the speakers for the day was Leo DeMeo of Alameda who spoke to the Lions Club. The counties of Marin, Sonoma, Mendocino and Lake held a joint dental meeting. The speakers were Bernie Smith of Oakland who spoke on Nutrition and Charles Sweet, Jr. who spoke on Pulpal Therapy. F. Haywood Norton was also to speak but was called out of town by his mother's illness. We are hoping that she will be better soon.

FROM ILLINOIS:

The Illinois State Unit of the A.S.D.C. was officially reorganized at a meeting held Wednesday, January 27, 1949. The following temporary officers were elected:
William St. John, President
Gerard Casey, Treasurer
Robert O'Neil, Vice-President
Dayton B. Berk, Secretary

Permanent officers will be elected at the Illinois State Dental Society meeting to be held in Peoria, Illinois in May. All Illinois members of the A.S.D.C. will be notified as to the time and place of the meeting.

President Al has sent me a copy of Odontologia Infantil, official organ of the Cuban Society of Dentistry for Children, whose representative, Dr. Carlos Criner, attended our national meeting in Chicago and presented our organization with a scroll from the Cuban Society. Editor Al was impressed with the magazine and the wonderful words of friendship expressed therein, to the American Society. I understand that Dr. Criner, his charming family and Dr. Silvina Rodriguez spent

some time with the Seylers last September and that everybody had a fine time.

FROM MINNESOTA:

Officers of the Minnesota Unit are:
R. S. Brady, St. Paul, President
G. S. McEachran, Minneapolis, Secretary
Maurice Goldberg, Minneapolis, Vice-President
Joe Barsch, Minneapolis, Treasurer
R. M. Elliott, Reporter to Journal

Participants in the Minnesota State Dental Meeting in Minneapolis on February 21, 22, 23 included the following M.S.D.C. members:

Para-Formaldehyde Paste and Pulpotomy — A. D. Peterson, St. Paul, and Henry Bjordahl, St. Paul

Handling the Child Patient and Parent — R. M. Elliott, Wayzata

The Use of Colloid in the Making of Space Maintainers—J. A. Koch, St. Paul, G. A. Geist, St. Paul

Preventive Orthodontia for Children—C. D. Simpson, Minneapolis

Fractured Anteriors—Oscar Quamme, Minneapolis, and J. T. Cohen, Minneapolis

The Use of Sedatives for Long Appointments —R. S. Brady, St. Paul

BIRMINGHAM, ALABAMA:

Polly Ayers did a fine bit of public relations work, and learned a lot about public opinion. In October, Polly set up shop at the Alabama State Fair, using the mobile unit provided by Jefferson County. Those of you who have visited one of these units will admit it makes dentistry most attractive. But Polly was much worried. Fathers and mothers who visited the unit could not see anything pleasant about the whole thing! Just one father had a kind word to say about the dentist and his profession!

Know any young dentists who want to set up shop in Alabama? Polly needs help, and when she can take six days of the County Fair —well sir, she deserves help. And help she is getting! A championship foot ball game was played to help purchase another mobile dental unit. Know of a better reason for a foot ball game?

WYOMING:

Where the West begins and the East starts! (So say Ray Taylor and Phil Jay). But Fluorine and John Knutson are the same. Wyoming provided the first topical fluoride demonstration in the Rocky Mountain Region. The demonstration team was composed of Dr. S. Larmarr Crunk, Texas; Phyllis Le Claire and Mary V. Longtime, hygienists from Boston; Vona Harrell, of Denver. Much credit must go to the local dentists who did a swell job of public education. P.T.A., Women's Clubs and Civic Organizations were well informed by the local dentists before the demonstration. Other communities in Wyoming are now asking for the demonstration. A credit to the fine team work of all those interested in public health.

We should add, that Mrs. Thelma Mossberg, R.N., Sheridan School nurse, worked very closely with the local dentists. These school nurse gals can't be overlooked, Boss Al! (Can't you send your reporter on a tour of inspection—for a first hand report?)

Now we have the report that Lander is to receive the demonstration (December). By gosh, how this guy Knutson does get around —with a bottle of water! (He has better than that—if you press his Scotch nature to the limit.)

HERE AND THERE:

"Britain Unruffled by Health Plan." Yes, sir, we find this news in *our* public press! And you say it can't happen here?

"Britain's new National Health Service, born amid controversy, is growing in peace." Just to quote you one line! And here is some more: "Since it began July 5, 1948 there has been hardly a word of complaint from conservative newspapers on the British Medical Association, which fought the plan." But not a word about the dentists of Britain! I hope Scotty McBride will give us his version in his A.S.D.C. article, which your reporter has not read yet!

Out of 20,000 general practitioners (speaking of physicians only) 18,575 agreed to enter the public medical service. I would like to know the real attitude of the family dentist!

And it can't happen here? Certainly we

learned that all the experts could be wrong—come last November (California and Ohio included—not Michigan).

Arthur Dugoni, Jr. received the A.S.D.C. award given to the 1948 class at the School of Dentistry, San Francisco (Charlie Sweet's School). Art was also class Valedictorian. Now Art, these honors place heavy responsibilities on your shoulders. Well sir, we don't worry about you. You cannot fail, if you will simply apply the background which you have received. How you react to these fine influences, Art, will depend upon your personality and ability to meet social problems. Congratulations, Arthur, Jr.

You city birds — Chicago of course. You had a most profitable evening (November 16th.)—A.S.D.C. meeting and Chicago Dental Society Meeting. All in one big evening! If you haven't joined up, better get in touch with Dayton B. Berk, 27 E. Monroe St., Chicago 3. And for $3 you will hold a full membership and the Journal. Not a bad deal.

New York Unit on the Move!

Hugh Keenan gives us a fine report.

Hal Addelston, is President of the Unit; Joe Obst, President-Elect; Hugh Keenan, Secretary-Treasurer. And most important to the success of the Unit is Robert (Bob) L. Heinze — membership chairman. Without members no Unit can progress, so here is power to you, Bob! And Boss Al will go along with this—and Al is our President!

Left Michigan to the last. But the least shall not be last—or something like that. Michigan can do not wrong, because we have President Al with us!

But we did have a bang up "Stump the Experts" program, with Al as moderator. And those of us who know all—we did "stump the experts!" A Pathologist, Orthodontist, Pediatrician, Pedodontist, Psychiatrist—all paraded before the calm moderator Al, in our Ann Arbor meeting last December 1.

FROM PENNSYLVANIA:

Our own program for the season was and is as follows:

October 18th, 1948

Dr. Morris Kelner:
Diagnosis and Treatment Planning for the Juvenile Patient.

November 15th, 1948

Dr. Margery Deming, Surgeon in Charge of Anesthesia, Children's Hospital, Philadelphia, Pa.
General Anesthesia in Pedodontics.

Dr. Charles Chapple, Senior Physician at Children's Hospital, Philadelphia, Pa.
Apparent Affects of Foetal Position on the Formation of the Jaw.

January 17th, 1949

Dr. Samuel Seltzer

Dr. I. B. Bender
Instructors at the Department of Dental Research, University of Pennsylvania
Demonstration of Synergism between Penicillin and Streptomycin.
Investigations of Antibiotics in the Treatment of Yeast Like Infections of the Root Canal.

March 21st, 1949

Dr. J. L. T. Appleton, Dean of the Dental College of the University of Pennsylvania.
What are Dental Schools doing for Pedodontics?

Dr. Harold K. Addelston, Professor of Pedodontics, New York University.
Operative Procedures for Children in a General Practitioner's Office.

April 18th, 1949

Election of Officers

Papers presented by three different members who have been given the titles for study purposes.

Dr. Leroy Gates:
Comparative Statistics of Dental Pathology in Negro and White Children.

Dr. Muriel Robinson:
New Trends and Changes of Diet Requirements in Caries Prevention.

Dr. David Engel:

This department is conducted by Stan Brown. Please direct items of interest to him at Ithaca, Michigan.

Anesthesia for the Child Patient

WILLARD T. HUNNICUT, D.D.S.

Atlanta, Georgia

Editor's Note:

Willard Hunnicutt, of Atlanta, Ga., presented the accompanying paper before the Georgia Dental Association, from whence it was sent to us for publication. After reading Dr. Fredrickson's paper which appears in this issue, we realized we couldn't reconcile the two, so decided to print them both—with the reader taking his choice!

A.E.S.

My good friend Dr. Charles A. Sweet of California wrote me, quote, "to answer your question about continuing education, I think the most important thing any man can perfect himself in is anesthesia, developing his own technique so that he *will not hurt people.* This is the greatest aid as a practice builder that I know of and it helps to bring about a self satisfaction that enthuses one with the practice of dentistry. Study general anesthesia, local anesthesia, analgesia, sedation, hypnotism and anything else that will make things more pleasant in the dentist's office and lower the blood pressure of the patient." unquote. This was the surprising answer to my questions concerning the advisability of continuing to go to school part of each year throughout one's entire professional life and where to begin such a program. This advice is applicable to all dentistry, but is doubly important in dentistry for children.

The general practitioner of dentistry is constantly faced with the problems of treating badly diseased teeth for children. Many times the confidence engendered through a very carefully planned psychological approach is lost by the unsuccessful control of the purely physical pain incident to extraction, pulp removal, or cavity preparation.

Dentists who are inexperienced or not certain of their ability to properly manage a patient should not hesitate to administer a sedative. The medication we have used successfully is one of the short acting barbiturates-pentobarbital sodium (Nembutal). The dosage of the sedative should be varied according to the weight of the child ranging from ¼ to 1½ grains. If the child weighs as much as 60 pounds you may give ¾ grains. A little known fact is that sedation will be easier by far if on retiring the night previous to the appointment the child is given ¾ to 1½ grains of Pentobarbital sodium and then given ¾ to 1½ grains immediately preceding his appointment. The simplest and most effective means we have found for the dentist, his assistant, or a parent to give pentobarbital sodium is to open the capsule and mix the powder in a teaspoonful of simple syrup or jelly. The reaction time of the patient is greatly lessened by this method of administration.

Sedation should be used:

1. To reduce physical resistance.
2. To reduce psychic shock.
3. To counteract the effect of the vasoconstrictor used in the local anesthetic.
4. To increase the effectiveness of procaine.
5. To minimize procaine toxicity. (procaine is toxic in about one in one hundred thousand cases).

It will also be helpful when photographic records are desired or x-rays are necessary on account of its quieting effect allowing time for focusing and exposure without movement of the patient.

With mental deficients or extreme cases of misbehavior a rectal suppository made of cocoa butter and pentobarbital sodium can be employed but the dose must be increased.

When a sedative is employed the patient should not be dismissed without an escort

as the effects of sedation may last longer than anticipated. Children frequently appear to have returned to normal yet their reaction time is slowed and judgment considerably impaired. It might be said that in many of these cases of highly excitable children we may eliminate the use of any other anesthetic for operative work by the judicious use of this sedative.

No "rule of thumb" can be made for determining when the administration of a local anesthetic is justified. Each operator must determine whether the case at hand can or cannot be handled more effectively through the use of a local anesthetic. There should be no hesitancy to use local anesthetics regardless of the age of the patient, however, a positive technic for and confidence in one's ability to administer a local anesthetic may be very helpful in performing a more thorough operation as well as in maintaining the patient's confidence.

The only technique we specify over others in the use of a local is the use of "the direct thrust" on mandibular block injections, as the "1-2-3" or Fisher method is apt to cause pain.

Any accepted technique may be used without fear on the maxilla.

The fear that the anesthetic solution will have some unfavorable effect upon a patient can be dismissed if we never inject more than 2 c.c. of a solution containing a vasconstrictor 1:50,000, 1:60,000 or 1:75,000. This amount may be relied upon to produce anesthesia for any operative procedure or extraction. If a barbiturate is used as sedation the amount of anesthetic may be increased. A point that may interest some and draw criticism from others is the fact that we, several years ago, ceased the ritual of painting the site or point of entry of the needle with an antiseptic. The rationale behind this is twofold—the topical anesthetic is not effective unless rubbed on from 30 seconds to one minute, and when the patient tastes this you then have an unmanageable patient. The same is true of the topical swabbing with antiseptic plus the fact that some authorities claim that we destroy local tissue immunity. *I have never seen* an infection attributable to the needle puncture. The best topical anesthetic I have found is a sharp needle and a positive technique.

All palatal injections may be dispensed with when doing operative precedures on the maxilla.

Don't fool yourself by infiltrating on the lower jaw, as this is certain to fail to produce profound anesthesia. Use the mandibular block with the "direct thrust."

For all injections we use 25 gauge 1⅝ inch needles.

On those patients who need a general anesthetic or deep analgesic for the removal of one or more primary teeth we prefer ethyl-chloride and its use has become more popular from year to year.

The unusual success with the large number of cases at The Forsyth Dental Infirmary shows the practical and efficient manner in which ethyl chloride may be used. Many have questioned the safety of ethyl chloride, but from 1815 to September 1938 at Forsyth Dental Infirmary there were 215,000 administrations without a fatality. I do not have the figures since 1938, but in 1945-1946 they gave 1500 ethyl chloride, 2600 novacaine and 300 nitrous oxide and vinethene administrations. There is no better anesthetic for short operations where the time from one to three minutes will complete the case. It is used as a deep analgesia, which is the primary stage of general anesthesia and never reaches the secondary or excitement stage when administered properly.

No attempt is made to attain the surgical stage. In most instances when preparing a child for ethyl chloride administration the parents are generally advised that no food is to be eaten three to four hours before the anesthesia. This, generally speaking, is sound advice, but so many children must come from school or are brought in as emergencies that in hundreds of cases we have been unable to prepare them thusly. Even in these cases there were no untoward results other than an occasional nausea.

Position of Patient

Since cerebral anemia is produced, the patient should be somewhat recumbent. Tilt the chair backward slightly, loosen the garments around the throat, and insert the mouth

prop in the opposite side of the mouth. Instruct the patient to bite firmly on it.

Induction

Two layers of gauze about 4 x 4 inches are placed over the mouth, and the nostrils are gently closed with the thumb and forefinger of the left hand. The chin is supported by the remaining three fingers. Permit the patient to breathe air through the gauze a moment and then *drop* on, not spray, the ethyl chloride holding the vial several inches away. Care must be taken not to allow the gauze to "frost-up." Dropping of the ethyl chloride may be accomplished by placing a piece of matrix material between the spring cap and vial. The volatile ethyl chloride may then be dropped on the gauze.

Operating Stage

After inhaling the vapor for about 30 to 40 seconds the signs of analgesia will be noticed. The lid reflex will be sluggish or absent, eyes roll or become fixed upward or downward, arm if lifted drops heavily, patient snores slightly, the conjunctival reflex IS present. The period lasts three to four minutes, followed by a thirty to sixty second period of analgesia, in which the patient is conscious but sensation to pain is lost.

Complications

Are rare. When they arise they are usually of minor consequence.

Cyanosis

Not due to ethyl chloride, but some obstruction, foreign body, blood, mucous, etc.

Cessation of Breathing

When insufficient air is given the primary stimulation is apt to cause a spasm of the larynx allowing neither inspiration or expiration.

Syncope

Or fainting, is due to sudden cerebral anemia and manifests itself by sudden change in color. Pallor is extreme, pupils dilate, and return to consciousness is slow.

Treatment for Complications

Tilting the head forward relieves obstruction to larynx due to mucous, etc. In extreme cases hold the child's head down and milk the trachea. If the tongue falls back it may be pulled forward with tongue forceps or gauze.

Cessation of Breathing

Press the diaphragm sharply for reflex inspiration.

Syncope

Sudden change of color demands the head be lowered and aromatic spirits of ammonia be inhaled or camphor in oil, or Caffeine Sodium Benzoate subcutaneously. Coramine subcutaneously or intramuscularly is also excellent.

Shock

Patient must be kept warm. If respiration stops, inject atropine sulphate, strychnine sulphate, or camphor in oil. Artificial respiration begun and if necessary the lungs inflated with oxygen. The BEST treatment is to allow no complication to arise.

Contraindications

Never administer to a patient with any kind of respiratory obstruction, T.B., bronchitis, anemia, lukemia or heart disease.

A good bit of interest has arisen concerning the use of Vinyl ether or Vinethene. We tried and discarded it in our office for several reasons.

1. It decomposes rapidly upon exposure to light and air, and should not be used if opened for more than twenty-four hours.
2. In the primary stage Divinyl ether makes the patient dizzy and excited thus bringing about an unmanageable patient.
3. Has a safety factor between chloroform and ether, and as an analgesia it approaches the safety factor of ether analgesia.
4. Changes in depth of anesthesia occur rapidly and skill is necessary to maintain an even level.
5. A high concentration of Vinethene vapor may produce secretions, or an undesirable deepening of anesthesia.

Nitrous Oxide

Excellent, but not for children as the necessary bulk of the apparatus frightens them. Older children will take it very well.

In conclusion I would like to say that the universal anesthetic or technique has not been found, and no single agent or method of administration is best for all types of operations.